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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,813	08/04/2003	Kenichi Nishiuchi	MTS-3216US1	5343
23122	7590	11/29/2006	EXAMINER	
RATNERPRESTIA P O BOX 980 VALLEY FORGE, PA 19482-0980			CHU, KIM KWOK	
			ART UNIT	PAPER NUMBER
			2627	

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/633,813	NISHIUCHI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kim-Kwok CHU	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed on 9/8/2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-9,14,19 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-9,14 and 21 is/are rejected.
- 7) ☒ Claim(s) 19,22 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/702,204.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Response to Remarks***

1. Applicant's Amendment filed on September 8, 2006 has been fully considered but it is not persuasive.

With respect to Applicant's claimed first and second center lines, the prior art of Tekemura's Fig. 3A illustrated a first center lines 21, 23 along the grooves and a second center line 22 along the track. Applicant states that the prior art of Tekemura's center line of groove 21 and the center line between first address block 16, 17 and the second address blocks 18, 19 coincide in radial direction (page 9 of the Remarks, lines 11-13). Accordingly, the center line between first address block 16, 17 on groove 21 and the second address blocks 18, 19 on groove 23 has a center line 22 which do not coincide with center line 21.

Applicant emphasizes the claimed axes relate to address sequences of a recording track (page 9 of the Remarks, last 3 and 4 lines). Accordingly, Applicant does not claim address pit sequences and its axes of a single track. Instead, in Claim 1, for example, Applicant claims address pit sequences formed between recording tracks. In other words, as a prior art, it is not necessary for Tekemura's address sequences such as 16, 17 and 18, 19 be selected from the same track.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless -  
(e) the invention was described in a patent  
granted on an application for patent by another  
filed in the United States before the invention  
thereof by the applicant for patent, or on an  
international application by another who has  
fulfilled the requirements of paragraphs (1),  
(2), and (4) of section 371(c) of this title  
before the invention thereof by the applicant  
for patent.*

3. Claims 1-3 and 21 are rejected under 35 U.S.C. § 102(e) as being anticipated by Takemura et al. (U.S. Patent 6,172,960).

4. Takemura teaches a substrate for an optical recording medium having all of the elements and means as recited in claims 1-3. For example, Takemura teaches the following:

(a) with respect to Claim 1, a plurality of recording tracks (21, 23) formed on a disc (Fig. 3A; recording track includes a plurality of grooves); and an address section 5 comprising first and second address pit sequences 16-19 formed between the recording tracks along an information reading direction of the recording tracks (Fig. 3A; each track section is divided by address pit sequences), the recording tracks 21, 23 are divided into a prescribed number of zones (Fig. 1; each zone contains a plurality of

grooves), each of the recording track 21, 23 having a first center line 21 extending along the information reading direction (Fig. 3A; groove 21 has a center line); and the first and second address pit sequences (16, 17 and 18, 19) each having a respective center axis extending along the information reading direction (Fig. 3A; first address pit is 16, 17; second address pit is 18, 19; each address pit has a center line  $Tp/2$  offset from a track's center line), the address pit's center axis disposed equidistantly from and on opposing sides of a second center line 22 of the address section 5, the second center line 22 extending along the information reading direction (Fig. 3A; address pit 16, 17 on groove 21 and 18, 19 on groove 23 opposing to each other and disposed equidistantly from land 22's center line), the second center line 22 is shifted in radial direction of the disc, with respect to the first center line 21 to form a predetermined offset (Fig. 3A; second center line 22 is shifted  $Tp$  from first center line 21).

(b) with respect to Claim 2, the address section 5 comprises a pair of intermediate addresses 16, 17 and 18, 19 located at positions shifted relative to each other in the radial direction of the disc (Fig. 3A), the center of the address section is represented by a center line extending between center axes of the intermediate addresses (Fig. 3A).

(c) with respect to Claim 3, the direction of shift of the center of the address section is reversed between the shift relative to the radially outermost recording track and the shift relative to the radially innermost recording track in the same zone (Fig. 4A; address section 16, 17 shift towards the center line, address section 18, 19 shift away from the center line).

5. Method claim 21 is drawn to the method of using the corresponding apparatus claimed in claim 1. Therefore method claim 21 corresponds to apparatus claim 1 and is rejected for the same reason of anticipation as used above.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.*

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takemura et al. (U.S. Patent 6,172,960) in view of Ton-That (U.S. Patent 5,796,543).

Takemura teaches an optical disk very similar to that of the instant invention. However, Takemura does not teach the following:

(a) as in claim 4, the amount of shift of the center of the address section decreases continuously or in a step-like manner within each zone from the radially outermost or innermost portion of each zone toward the center thereof.

Ton-That teaches a servo sector where each servo address group is offset by a fractional increment (Fig. 5A and 5B).

To continue reproduce address information without a track jump to the left and right along the center of a track, it would have been obvious to one of ordinary skill

in the art at the time of invention to arrange Takemura's address pits similar to Ton-That's servo sector, because the incremental shift of each address information relative to the center line of a track such as Ton-That's allows Takemura's optical head continuously read the address pit sequence without the need of changing a track.

8. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takemura et al. (U.S. Patent 6,172,960) in view of Miyagawa et al. (U.S. Patent 6,118,752).

Takemura teaches an optical disk very similar to that of the instant invention. However, Takemura does not teach the following:

(a) as in claim 6, the optical recording medium comprising a phase change type thin film recording layer formed on an upper surface of the substrate for an optical recording medium; and

(b) as in claim 7, the phase change type thin film recording layer is initialized in advance.

Miyagawa teaches an optical disk having the following features:

(a) the optical recording medium comprising a phase change type thin film recording layer formed on an upper

surface of the substrate for an optical recording medium (Fig. 9; column 36, lines 9-11); and

(b) the phase change type thin film recording layer is initialized (crystallized) in advance (Fig. 9; a new phase-change type optical medium has to be initialized first before it can be used to record data).

For the benefit of a recording medium to be rewritable, it would have been obvious to one of ordinary skill in the art at the time of invention to use a phase-change type recording medium such as Miyagawa's in Takemura's optical recording/reproducing system, because the phase-change type recording medium can be rewritten for editing the content of the recorded information.

9. Claims 8, 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takemura et al. (U.S. Patent 6,172,960) in view of Tanoue et al. (U.S. Patent 6,064,643) and Inui et al. (U.S. Patent 5,933,411).

Takemura teaches an optical disc very similar to that of the instant invention. For example, Takemura teaches the following:

(a) as in claim 9, in an area for the recording tracks, parallel or wobbled guide grooves are formed (Fig. 3A); and

(b) as in claims 9 and 14, in an area for the address section 5, a beam of light is shifted in the radial

direction of the disc so that, in each zone, the center of the address section corresponding at least to the recording track in the radially outermost or radially innermost guide groove shifts in the radial direction of the disc in relative relationship to the center of the recording track in the guide groove (Fig. 3A; address pits 5 are formed by shifting a beam of light so that the address pits are offset relative to the center of the recording track).

However, Takemura does not teach the following:

- (a) as in claim 8, a master disc recording apparatus to produce the substrate for an optical recording medium;
- (b) as in claim 8, portions corresponding to the guide grooves and the address section are formed on a glass master disc having a photoresist layer;
- (c) as in claim 9, the apparatus comprising a light source for photographically exposing the photoresist layer on the glass master disc;
- (d) as in claim 9, an optical modulator for optically modulating light of the light source in accordance with an address signal;
- (e) as in claim 9, a deflector for deflecting the optically modulated light;
- (f) as in claim 9, the deflector is an EO deflector which deflects the optically modulated light;

(g) as in claim 14, a signal generating apparatus supplies the optical modulator with a binary signal corresponding to the address signal, and supplies the EO deflector with (a) in the case of the recording track area, a voltage for forming parallel or wobbling guide grooves, and (b) in the case of the address section area, a shift voltage for deflecting the optically modulated light;

Tanoue teaches an optical recording disk having the following features:

(a) a master disc recording apparatus to produce the substrate for an optical recording medium 40 (Fig. 5);

(b) portions corresponding to the guide grooves and the address section are formed on a glass master disc having a photoresist layer (Fig. 5; column 11, lines 65-67);

(c) a light source 41 for photographically exposing the photoresist layer on the glass master disc (Fig. 5);

(d) an optical modulator 44 for optically modulating light of the light source 41 in accordance with an address signal (Fig. 5; column 11, lines 50-53);

(e) a deflector 47 for deflecting the optically modulated light (Fig. 5); and

(f) a signal generating apparatus 49 supplies the optical modulator 44 with a binary signal corresponding to the address signal.

Inui teaches an optical recording disk having the following features:

(a) a deflector 223 is an EO deflector which deflects the optically modulated light (Fig. 19; column 12, lines 58-63);

(b) a signal generating apparatus 226 that supplies the EO deflector 223 with (a) in the case of the recording track area, a voltage for forming parallel or wobbling guide grooves, and (b) in the case of the address section area, a shift voltage for deflecting the optically modulated light (Fig. 19; column 13, lines 27-40);

(c) the polarity of the shift voltage supplied to the EO deflector 223 is reversed between the voltage for the radially outermost recording track and the voltage for the radially innermost recording track in the same zone (Fig. 19; voltage polarity changes in order to change the deflector's deflecting angle).

Referring to the features of producing a master disc in claims 8 and 9, to produce track structures such as guide grooves and address sections on the disc, it would have been obvious to one of ordinary skill in the art to produce Takemura's optical disc with a photoresist layer similar to Tanoue's, because optical disc structures such as guide groove and address section are etched from a substrate layer using the photoresist layer.

Second, referring to the mastering of a blank new master disc, it would have been obvious to one of ordinary skill in the art to use a disc mastering apparatus such as Tanoue's, because the disc mastering apparatus writes data and addresses on the disc in the form of pits so that copies of the disc can be stamped from the master disc.

Furthermore, in order to form data pits on the master disc of Takemura's, it would have been obvious to one of ordinary skill in the art to use Tanoue's disc mastering apparatus with a laser light source, an optical modulator, a deflector and a signal generator means, because the light source is modulated with information such as an address supplied by the signal generator. Then, the modulated light outputted from the modulator is deflected by the deflector to the proper locations on the disc to form pits. In general, it is known as formatting a new blank disc.

On the other hand, referring to claims 9 and 14 about the EO deflector and its deflecting voltages, they are considered as typical light deflecting operations. For example, it would have been obvious to one of ordinary skill in the art to use an electro-optical light deflecting means such as Inui's in Tanoue's disc mastering apparatus, because the light deflecting means is driven by electro magnetic means such that the light deflecting angle of the deflector is controlled by the electro-magnetic means.

In addition, since the light deflecting means is controlled by the EO deflector such as Inui's, it would have been obvious to one of ordinary skill in the art to drive the electro-optical deflector with a voltage to form parallel tracks and a shift voltage to form wobble address sections on Tanoue's master disc, because the parallel tracks are formed by a deflecting voltage while the wobble address sections which are offset from the regular tracks are formed by a shift voltage instead of the voltage for track deflection.

Since the address section such as Tanoue's is positioned on either side of a track, it would have been obvious to one of ordinary skill in the art to have reversible shift voltages for forming wobble address sections, because the reverse voltage would have controlled the light deflector in an opposite direction when an address section is formed on the other side of the track.

***Allowable Subject Matter***

10. Claims 19, 22 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claim 19, the prior art of record fails to teach or fairly suggest an optical recording medium where the predetermined offset is a radial shift substantially equal in amount and opposite in direction to a radial shift between third and fourth center lines measured on a calibration substrate, the third center line defined by a center of an address section on the calibration substrate, and the fourth center line defined by a center line of a recording track on the calibration substrate.

As in claims 22 and 23, the prior art of record fails to teach or fairly suggest a method for producing a substrate for an optical recording medium having a step of determining the amount and direction of the offset using a calibration substrate.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action

13. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington, can be reached on (571) 272-4483.

The fax number for the organization where this application or proceeding is assigned is (571) 273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9191 (toll free).

Kim-Kwok CHU

Examiner AU2627  
November 24, 2006  
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